Anton Burykin, Ph.D.

Emory University
Emory Clinic, Building A
1365 Clifton Road NE, # A5038
Atlanta, GA 30322

(404)-712-0438 (office)
(314)-761-5422 (cell)
(404)-727-3316 (fax)

anton.burykin@emory.edu
burykin@gmail.com
www.burykin.com
Skype: anton.burykin

RESEARCH INTERESTS: Biomedical Physics & Complex Systems
METHODS: Computer Simulation & Time Series Analysis

EMPLOYMENT

Emory University School of Medicine
Department of Surgery and Emory Center for Critical Care (ECCC) (Director: Prof. Timothy G. Buchman)
Research Associate 2009-present

Washington University in St. Louis, School of Medicine
Department of Surgery, Section of Acute and Critical Care Surgery (Prof. Timothy G. Buchman)
Staff Scientist 2008-2009
Postdoctoral Fellow 2005-2008

University of Southern California (USC), Department of Chemistry, Los Angeles
Theoretical Chemistry and Biophysics Group (Prof. Arieh Warshel)
Research Assistant 2000–2005

A. V. Vishnevsky Surgery Institute, Russian Academy of Medical Sciences, Moscow, Russia
Medical Cybernetics Lab (Prof. Eugen N. Timin)
Research Scientist 1998-2000

EDUCATION

- University of Southern California (USC), Los Angeles, CA

  Ph.D. COMPUTATIONAL CHEMISTRY 2005
  Thesis: "*Computer Simulation of Charge Transfer through Biological and Artificial Membrane Channels*"
  Advisor: Arieh Warshel

- Moscow Institute of Physics and Technology (MIPT, PhysTech), Moscow, Russia

  M.S. BIOPHYSICS & ECOLOGY with honor 2000
  Thesis: "*Development of New Methods for Computer Simulation of Human Body Systems (for the Case of the Cardiovascular System)*" Advisor: Eugen N. Timin

  B.S. APPLIED MATHEMATICS & PHYSICS with honor 1998
  Thesis: "*Theoretical Investigations of Conversion of Non-Coherent Radiation to Coherent Radiation Inside of a Thin Layer of Dye and Its Removal through the Lateral Surface of the Layer by Means of Defocusing*". Advisor: Vladimir P. Bykov.

Other Educational Programs & Summer Schools

- USC Center for Excellence in Teaching (CET):

  CERTIFICATE, Preparing Future Faculty Program (one year program designed to prepare doctoral students considering careers as faculty members in higher education) 2005

- Moscow Institute of Physics and Technology, Center for Business Education

  DIPLOMA, HI-TECH MANAGEMENT 1999
  Thesis: "*Design of the Federal Medical Network 'Russian Telemedicine'*" Advisor: Eugen N. Timin

  CERTIFICATE, HI-TECH CONSULTING 1998

- Santa Fe Institute, Santa Fe, NM:
  Complex Systems Summer School (CSSS2005) June 2005
  Summer School "Mathematical and Computer Models in Medicine: Disease and Treatment" August 2004

- American Psychological Association
  Advanced Training Institute in Non-Linear Methods for Psychology, University of Cincinnati, OH July 2006

SCHOLARSHIPS & AWARDS

- DARPA Postdoctoral Fellowship 2005-2007
- Multiple travel grants from various institutions, including SFI, UCI and others 2002-2007
- Predoctoral Scholarship, Department of Chemistry, USC 2003-2005
- Best Poster Award. American Chemical Society, Physical Chemistry Division (227th ACS National Meeting) 2004
- Graduate Research Award in Chemistry (USC) May 2003
- Scholarship from the Investment Group "Russian Funds" (MIPT) 1999-2000
- Moscow Mayor Scholarship (MIPT) 1998-1999
- Best Undergraduate Student Talk (XLI MIPT Research Conference) 1998

PROFESSIONAL SERVICE

- External Advisory Board for the PhysioNet - NIBIB/NIGMS-sponsored research resource for complex physiologic signals (www.physionet.org), 2010 & 2011
- Reviewer for:
  - *Physiological Measurement*
  - *Medical and Engineering Physics*
  - *Journal of Critical Care*
  - *Proteins: Structure, Function, and Bioinformatics*
  - *Biochimica et Biophysica Acta (BBA) - Bioenergetics*
  - *IEEE Transactions on Biomedical Engineering*
  - *IEEE/ACM Transactions on Computational Biology and Bioinformatics*
  - *Journal of Healthcare Engineering*
  - *Organization for Computational Neuroscience Meeting CNS 2011*
  - *The 2009 North American Conference on Computing and Philosophy (NACAP): "Networks & Their Philosophical Implications" (member of the reviewer committee)*
  - *The 5th Asia-Pacific Computing and Philosophy Conference (AP-CAP 2009)*
- Grant Reviewer: ● Grant Council of the Russian Government, Ministry of Education and Science, 2011
- Member of Postdoctoral Policy Committee, Washington University in St. Louis, School of Medicine (2006-2007).

SCIENTIFIC SOFTWARE DEVELOPMENT

1. Multi Wave Animator (MWA) – Open source MATLAB scripts to create animations (videos) of patient vital signs recorded from bedside monitors. Burykin, A. Available at www.burykin.com/mwa/ 2008-2009
2. Boltzmann (Fortran77/90) – Numerical calculation of properties of different statistical ensembles from the first principles of statistical mechanics. An attempt to build statistical mechanics based on algorithms, not on analytical derivations ("NKS paradigm"). The program is used for teaching of computational statistical mechanics classes. Burykin, A. and Warshel, A. 2002
3. CHANNELIX (Fortran77/90) – Langevin Dynamics simulation of 1D & 3D ion transport through single ion channel (numerical solution of systems of stochastic differential equations). Burykin, A, Villa, J. and Warshel A. 2001-2003
4. MOLARIS (Fortran77) - Molecular Modeling Package (A. Warshel et al). Modification, debugging, support and documentation 2000–2005
5. USE (Java) - "Universal Simulation Environment" for visual simulations of the human organism. The program is based on the object-oriented (UML & Java classes) library of models of basic human organs and uses "decentralized" modeling methodology. (Kholodov, A, Evdokimov, A, Burykin, A, et al.) 1998-2000

DATABASE DEVELOPMENT

1. ICU VSDB (Vital Sign Databank): Physiologic signals (ECG, respiration, blood pressure, ...) recorded from critically ill patients during 1year period (Oct05-Oct06). Approximately 3.35×10^3 recordings from 1.2×10^3 patients (total size 4.5TB, 2×10^5 files). Selected datasets are available at www.burykin.com/sbt/ 2005-2006

SCIENTIFIC ANIMATIONS (VIDEO)

1. "*Intraoperative Cardiac Arrest and Resuscitation During Orthotopic Liver Transplantation"* Computer animation (video) of a patient vital signs recorded during liver transplant surgery. Created with Multi Wave Animator (MWA) Software 2008-2010
   Available at http://anest.wustl.edu/media/video/PUBVID_IntraoperativeCardiacArrestAndResuscitation.aspx
2. Transport of the potassium ions (K^+) through the KcsA ion channel (AVI, 1min, 10MB). Animation of a fragment of long (1ns) ion trajectories – numerical solution of the Langevin equation. 2003
   Available at www.burykin.com/movies/KcsA.avi

MEMBERSHIP

- New York Academy of Sciences
- World Academy of Young Scientists
- American Physical Society
- International Society for Complexity in Acute Illness
- Internet Society
- Society for the Internet in Medicine
- International Zeolite Association
- Science Advisory Board

TEACHING EXPERIENCE

University of Southern California, Department of Chemistry

Teaching Assistant: *Computer Simulations of Chemical and Biological Systems* (graduate) Spring 2004
Teaching Assistant: *Computational Statistical Mechanics* (graduate) Spring 2002, Spring 2003
Teaching Assistant: *General Chemistry* (undergraduate) Fall 2000

Moscow Institute of Physics and Technology

Lecturer*: Introduction to Object-Oriented Programming & Java Technologies* (undergraduate) Spring 2000
Teaching Assistant: *Introduction to Informational Technologies* (undergraduate) Fall 1999

PUBLICATIONS

I. Publications in Refereed Journals

Cited 273 times (ISI Web of Knowledge 05/04/11)

1. **Burykin, A.**, Buchman T. G., Novel Data Displays Are Needed to Infer and Monitor Interdependences Between Different Physiologic Waveforms (Editorial Comment). Submitted to *J. of Trauma.*

2. Vannucci, A., **Burykin, A.**, Krejci, V., Peck, T., Buchman T. G, Kangrga, I., Post-reperfusion Cardiac Arrest and Resuscitation During Orthotopic Liver Transplantation: Dynamic Visualization and Analysis of Physiological Recordings. Submitted to *Shock.*

3. **Burykin, A.**, Peck, T., Krejci, V., Vannucci, A., Kangrga, I., Buchman T. G, Toward Optimal Display of Physiologic Status in Critical Care: I. Recreating Bedside Displays from Archived Physiologic Data. *J. Critical Care* 26(1):105.e1-9 (2011), doi:10.1016/j.jcrc.2010.06.013.

4. **Burykin, A.**, Peck, T., Buchman T. G., Using "Off-the-Shelf" Tools for Terabyte-Scale Waveform Recording in Intensive Care: Computer System Design, Database Description and Lessons Learned. *Computer Methods and Programs in Biomedicine* doi:10.1016/j.cmpb.2010.10.004.

5. **Burykin, A.**, Costa, M.D., Peng, C-K., Goldberger, A.L., Buchman T. G., Generating Signals with Multiscale Time Irreversibility: The Asymmetric Weierstrass Function. *Complexity* 16(4):29-38 (2011).

6. Lu*****, Y., **Burykin*, A.**, Deem, M.W., Buchman T. G., Predicting Clinical Physiology: A Markov Chain Model of Heart Rate Recovery After Spontaneous Breathing Trials in Mechanically Ventilated Patients. *J. of Critical Care* 24(3):347-361 (2009) *[times cited: 1]*.

   ***** equal authorship

   featured in: Invited Commentary, Raphael, D.T. *J. of Critical Care* 24(3):362-363 (2009);

7. Polpitiya, A. D., McDunn, J. E., **Burykin, A.**, Ghosh, B. K., Cobb, J. P., Using Systems Biology to Simplify Complex Disease: Immune Cartography. *Critical Care Medicine.* 37(1 Suppl): S16-21 (2009) *[times cited: 4]*.

8. **Burykin, A**, Buchman T. G., Cardiorespiratory Dynamics during Transitions between Mechanical and Spontaneous Ventilation in Intensive Care. *Complexity*, 13(6): 40-59 (2008) (COVER IMAGE) *[times cited: 3].*

9. McDunn, J. E., Husain, K. D., Polpitiya, A. D., **Burykin, A.**, Rua, J., Li, Q., Schierding, W., Lin, N., Dixon, D., Zhang, W., Coopersmith, C. M., Dunne, W. M., Colonna, M., Ghosh, B., Cobb, J. P., Plasticity of the Systemic Inflammatory Response to Acute Infection During Critical Illness: Development of the Riboleukogram. *PLoS ONE* 3(2): e1564. doi:10.1371/journal.pone.0001564 (2008) *[times cited: 14]*

   featured in (for locally saved copies see: www.burykin.com/systems_biology.html):
   - http://record.wustl.edu/news/page/normal/11270.html
   - http://mednews.wustl.edu/news/page/normal/11047.html
   - www.physorg.com/news122099499.html
   - www.medicalnewstoday.com/articles/97182.php
   - www.pharmaceutical-business-review.com/article_feature.asp?guid=6E22A01F-6A52-4954-9D17-F5039B4D0939
   - www.modernmedicine.com/modernmedicine/Internal+Medicine/Gene-Profile-May-Predict-Pneumonia-Risk-in-Critica/ArticleNewsFeed/Article/detail/492635
   - www.genomeweb.com/issues/news/145055-1.html
   - www.rtmagazine.com/respiratoryreport/2008-02-21_10.asp

- www.infectioncontroltoday.com/hotnews/gene-chip-differentiates-vap.html
- www.scientistlive.com/European-Science-News/Biotechnology/Gene_chips_used_to_ID_pneumonia/19743/
- www.innovations-report.com/html/reports/medicine_health/report-103410.html
- www.sciencecentric.com/news/08021406.htm
- www.newswise.com/articles/view/537725/
- www.datamonitor.com/industries/news/article/?pid=6E22A01F-6A52-4954-9D17-F5039B4D0939&type=CommentWire
- www.redorbit.com/news/health/1262343/bacterial_diagnostics_gene_expression_signals_way_forward/index.html
- www.reportbuyer.com/blog/bacterial-diagnostics-gene-expression-signals-way-forward/
- www.zibb.com/article/2726979/Bacterial+diagnostics+gene+expression+signals+way+forward
- http://penchart.com/content/view/24/27/
- http://google-sina.com/2008/02/18/gene-chip-technology-used-to-distinguish-ventilator-associated-pneumonia-from-underlying-critical-illness/
- http://health.go2blogging.com:80/2008/02/13/ventilator-associated-pneumonia-distinguished-from-underlying-critical-illness-by-gene-chips

10. **Burykin, A**, Warshel, A, Membranes Assembled from Narrow Carbon Nanotubes Block Proton Transport and Can Form Effective Nano Filtration Devices. *J. of Computational and Theoretical Nanoscience* 3. 237-242 (2006) (COVER IMAGE) [*times cited: 4*].

11. Braun-Sand, S, **Burykin, A.**, Chu, Z. T., Warshel, A., Realistic Simulation of Proton Transport Along the Gramicidin Channel: Demonstrating the Importance of Solvation Effects. *J. of Physical Chemistry B* 109:586-592 (2005) [*times cited: 32*].

12. **Burykin, A**, Warshel, A, On the Origin of the Electrostatic Barrier for Proton Transport in Aquaporin. *FEBS Letters*, 570(1-3):41-46 (2004) (COVER IMAGE) [*times cited: 39*].

13. **Burykin, A**, Warshel, A, What Really Prevents Proton Transport through Aquaporin? Charge Self-Energy vs. Proton Wire Proposals. *Biophysical J.* 85:3696-3706 (2003) [*times cited: 76*].

    featured in:
    - Blockade in the Cell's Water Way, Yarnell A. *Chemical and Engineering News*, 82:42-44 (2004)
    - Why Can't Protons Move through Water Channel? (New and Notable). Bob Eisenberg. *Biophysical J.* 85:3427-3428 (2003)
    - Faculty of 1000 (Biology), F1000 Factor: 3.00. (www.f1000biology.com/article/14645061/evaluation)

14. **Burykin, A**, M. Kato, A. Warshel, Exploring the Origin of the Ion Selectivity of the KcsA Potassium Channel. *Proteins: Structure, Function, and Genetics* 52:412-426 (2003) [*times cited: 42*].

15. **Burykin, A**, Schutz C. N., Villa J., Warshel A., Simulations of Ion Current in Realistic Models of Ion Channels: The KcsA Potassium Channel. *Proteins: Structure, Function, and Genetics* 47:262-280 (2002) (COVER IMAGE) [*times cited: 58*].

II. Other Publications & Technical Reports

16. **Burykin, A**, Adamcsek, B., Agent-Based Modeling of Networks of Logistic Maps with Long-Range Coupling. *Proceedings of the 2005 Complex Systems Summer School*. Santa Fe Institute, 7pp.
    (Online version: www.santafe.edu/education/csss/csss05/papers/burykin_et_al._cssssf05.pdf)

17. **Burykin, A**, Computer Simulation Studies of Charge Transfer through Biological and Artificial Membrane Channels (*Ph.D. Thesis*, 300 pp.) (2005) www.burykin.com/PhD/PhD_thesis_Burykin.pdf

18. **Burykin, A**, Ernst, G., Seely, A. J. E. Altered Variability in Multiple Organ Failure: Model of Coupled Stochastic Oscillators. *Project Report for 2004 Summer School "Mathematical and Computer Models in Medicine: Disease and Treatment"*, Santa Fe Institute, 10pp.

19. **Burykin, A**, Development of Methods for Computer Simulation of Human Body Systems (for the Case of the Cardiovascular System) (*M.S. Thesis*, 87pp. in russian) (2000) www.burykin.com/MS_Thesis2000.pdf

20. Kholodov, A, **Burykin, A**, Evdokimov, A., et al., Future Development of the Computer Model of Human Organism. *MIPT Working Paper (Project GARKUSHA)* (in russian) (2000).

21. Kholodov, A, **Burykin, A**, Evdokimov, A, Lobanov, A., Safarov, A., et al., Computer Model of Human Organism for Prediction of Effects of External Ecological (Physical, Chemical and Biological) Factors. *MIPT Technical Report (Project GARBIA-3)* (in russian). Part 1, 190 pp. (1998), Part 2, 553 pp. (1999).

22. **Burykin, A.**, Design of the Federal Medical Network "Russian Telemedicine". *Diploma Thesis*, 21 pp. (in russian) (1999).

23. **Burykin, A.**, Bykov, V.P., Formation of Coherent Radiation Inside of an Infinitely Long Thin Layer of Dielectric and Its Removal through the Lateral Surface of the Layer by Means of Defocusing. *MIPT Working Paper*, 9 pp (in russian) (1999). www.burykin.com/papers/Burykin_Bykov_1999.pdf

24. **Burykin, A.**, Theoretical Investigations of Conversion of Non-Coherent Radiation to Coherent Radiation Inside of a Thin Layer of Dye and Its Removal through the Lateral Surface of the Layer by Means of Defocusing (*B.S. Thesis*, 24pp. in russian) (1998). www.burykin.com/papers/Burykin_BS_Thesis_1998.pdf

III. Published Abstracts

25. **Burykin, A.**, Costa, M.D., Peng, C-K., Goldberger, A.L., Buchman T. G., Construction of Functions With Prescribed Multiscale Asymmetry. Asymmetric Weierstrass Function. *J. of Critical Care 26(2) e9.* April 2011.

26. **Burykin, A.**, Peck, T., Krejci, V., Vannucci, A., Kangrga, I., Buchman T. G, Multi Wave Animator: Open-Source MATLAB Tool for Dynamic Visualization of Physiologic Signals Recorded from Bedside Monitors. *J. of Critical Care 26(2) e9-e10.* April 2011.

27. **Burykin, A.**, Peck, T., Buchman T. G., Using "Off-the-Shelf" Tools for Terabyte-Scale Waveform Recording in Intensive Care Unit: Computer System Design, Database Description, and Lessons Learned. *J. of Critical Care 26(2) e10.* April 2011.

28. **Burykin A**, Lu, Y., Deem, M.W., Buchman T. G., Fluctuation-Dissipation Theorem Provides a Simple Analytical Relationship between Post-Stress Heart Rate Recovery and Heart Rate Variability during the Stress. *J. of Critical Care* 24(3) e31. Sept. 2009.

29. **Burykin A**, Buchman T. G. Cardiorespiratory Dynamics in Critical Care. *J. of Critical Care* 21 (4): A350-A351. Dec 2006.

30. McDunn J.E., **Burykin A**, Schierding W, Cobb J.P., Ghosh B., Stormo G.D., Polpitiya A.D. Plasticity of the Human Innate Immune Response to Acute Infection During Critical Illness: Development of the Riboleukogram. *Critical Care Medicine* 34 (12): A47-A47 183 Sp. Iss. SI Suppl. S Dec 2006.

31. **Burykin, A**, Warshel, A, What Really Prevents Proton Transport through Aquaporin? Charge Self-Energy vs. Proton Wire Proposals. *Abstracts of Papers of the American Chemical Society* 227: U319-U319 397-PHYS Part 2, Mar 28 2004.

32. **Burykin, A**, Warshel, A, What Really Prevents Proton Transport through Aquaporin? Charge Self-Energy vs. Proton Wire Proposals. *Biophysical J.* 86 (1): 612A-612A Part 2 Suppl. S, Jan 2004.

33. **Burykin, A**, M. Kato, A. Warshel, Simulating Ion Current and Selectivity in Realistic Models of the KcsA Potassium Channel. *Abstracts of Papers of the American Chemical Society* 225: U462-U462 193-PHYS Part 2, Mar 2003.

34. **Burykin, A**, Schutz C. N., Villa J., Warshel A., On-the-fly Simulations of Ion Current in Realistic Models of Ion Channels: The KcsA Potassium Channel. *Biophysical J.* 82 (1): 207A-208A 1011 Part 2, Jan 2002.

SELECTED TALKS

1. **Burykin, A.**, *Synchronization of Cardio-Respiratory Dynamics in Critically Ill Patients.* School of Applied Physiology, Georgia Institute of Technology. March 30, 2011 (INVITED TALK).

2. **Burykin, A.**, *Toward Optimal Display of Physiologic Status in Critical Care*. Clinical and Translational Informatics Rounds (CTIR) Emory University School of Medicine, January 6, 2011 (INVITED TALK).

3. **Burykin, A.**, *Synchronization of Cardio-Respiratory Dynamics in Critically Ill Patients.* Neuroscience Institute, Georgia State University, November 19, 2010 (INVITED TALK).

4. **Burykin, A.**, *Some Applications of Nonlinear Dynamics and Statistical Physics in Critical Care*. Mathematical Biology and Ecology Seminar, School of mathematics, Georgia Institute of Technology. October 27, 2010 (INVITED TALK).

5. **Burykin, A.**, Fluctuation-*Dissipation Theorem (FDT) Provides a Simple Analytical Relationship between Post-Stress Heart Rate Recovery (HRR) and Heart Rate Variability (HRV) During the Stress.* 8th International Conference on Complexity in Acute Illness (SCAI) August 28-30, 2009, Palo Alto, CA.

6. **Burykin, A.**, *Construction of Asymmetric Functions*. DARPA Fundamental Law of Biology (FunBio) Program Meeting. August 20-22, 2008, San Francisco, CA.

7. **Burykin, A.**, **,** McDunn, J. E, Polpitiya, A. D., Dixon, D., Schierding, W., Ghosh, B., Cobb, J. P. *Principal Component Dynamics of Systemic Inflammation due to Critical Illness and Pneumonia: Evidence for an Immunological Attractor State.* Classification Society Annual Meeting, June 11–13, 2009, St. Louis, MO.
8. **Burykin, A.**, Buchman T. G., *Synchronization of Cardio-Respiratory Dynamics in Critically Ill Patients*. American Physical Society Meeting, New Orleans, LA, March 2008.
9. **Burykin, A.**, *How to Model Ion Channels: From Atomic Structure to Single Channel Electrophysiology*. Washington University, Biomedical Engineering Department, Prof. Y. Rudy Group, January 22, 2008, St. Louis, MO (INVITED TALK)**.**
10. **Burykin, A.**, *Synchronization of Cardio-Respiratory Dynamics in Critically Ill Patients*. Center for Neurodynamics, University of Missouri - St. Louis (UMSL), December 7, 2007, St. Louis, MO (INVITED TALK).
11. **Burykin, A.**, *Numerical Analysis of Single & Multi Scale Complexity Measures Using Synthetic Time Series.* DARPA Fundamental Laws of Biology (FunBio) Program (Variability Group) Web Conference. November 3, 2007, WWW.
12. **Burykin, A.**, *Indices of Phase Synchronization*. Time Series Analysis Tutorial (Prof E. Herzog Group), Washington University, September 7, 2007, St. Louis, MO (INVITED TALK).
13. **Burykin, A.**, *Physiological Variability, Complex Adaptive Systems & Fundamental Laws of Biology*. DARPA Fundamental Laws of Biology (FunBio) Program (Variability Group) Meeting, June 25 2007, New York. (INVITED TALK)
14. **Burykin, A.**, Buchman T. G. *Cardio-Respiratory Dynamics in Critically Ill Patients*. Systems Analysis Group, Washington University. March 7, 2007 St. Louis, MO (INVITED TALK)
15. **Burykin, A.**, Buchman T. G., *Cardio-Respiratory Dynamics in Critical Care: Synchronization & Variability*. Dynamics Days 2007. January 6, 2007, Boston, MA.
16. **Burykin, A.**, *Cardio-Respiratory Dynamics in Critically Ill Patients: Synchronization by Mechanical Ventilation.* Washington University, Department of Electrical and Systems Engineering Seminar, November 3, 2006, St. Louis, MO (INVITED TALK)**.**
17. **Burykin, A**, *Cardio-Respiratory Dynamics in Critically Ill Patients: Synchronization and Entrainment*, Washington University, Biomedical Engineering Department, Prof. I. R. Efimov Group, October 9, 2006, St. Louis, MO (INVITED TALK).
18. **Burykin, A**, *Attractors in Microarray Gene Expression Time Series.* Systems Analysis Group, Washington University. May 26, 2006, St. Louis, MO. (INVITED TALK)
19. **Burykin, A**, Adamcsek, B., *Agent-Based Modeling (RePast/Java) of Networks of Logistic Maps with Long-Range Coupling: Synchronization, Pattern Formation and Probability Distributions*. Complex Systems Summer School, June 30, 2005, Santa Fe, NM.
20. **Burykin, A**, Ernst, G., Seely, A. J. E. *Simulating Changes in Variability and Complexity During Multiple Organ Dysfunctions: A Model of Coupled Stochastic Oscillators*. 3rd International Conference on Complexity in Acute Illness, November 7-9, 2004, Pittsburgh, PA.
21. **Burykin, A**, Ernst, G., Seely, A. J. E. *Role of Altered Variability in Multiple Organ Failure: A Model of Coupled Stochastic Oscillators*. Summer School "Mathematical and Computer Models in Medicine: Disease and Treatment" Santa Fe Institute, Santa Fe, NM, August 5, 2004.
22. **Burykin, A***,* Kato, M, Warshel, A. *Simulating Ion Current and Selectivity in Realistic Models of the KcsA Potassium Channel*. 225th National Meeting of American Chemical Society. New Orleans, LA, March 2003 (INVITED TALK).